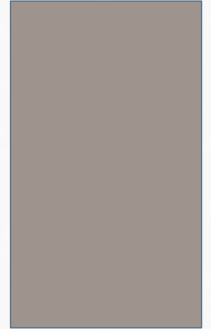


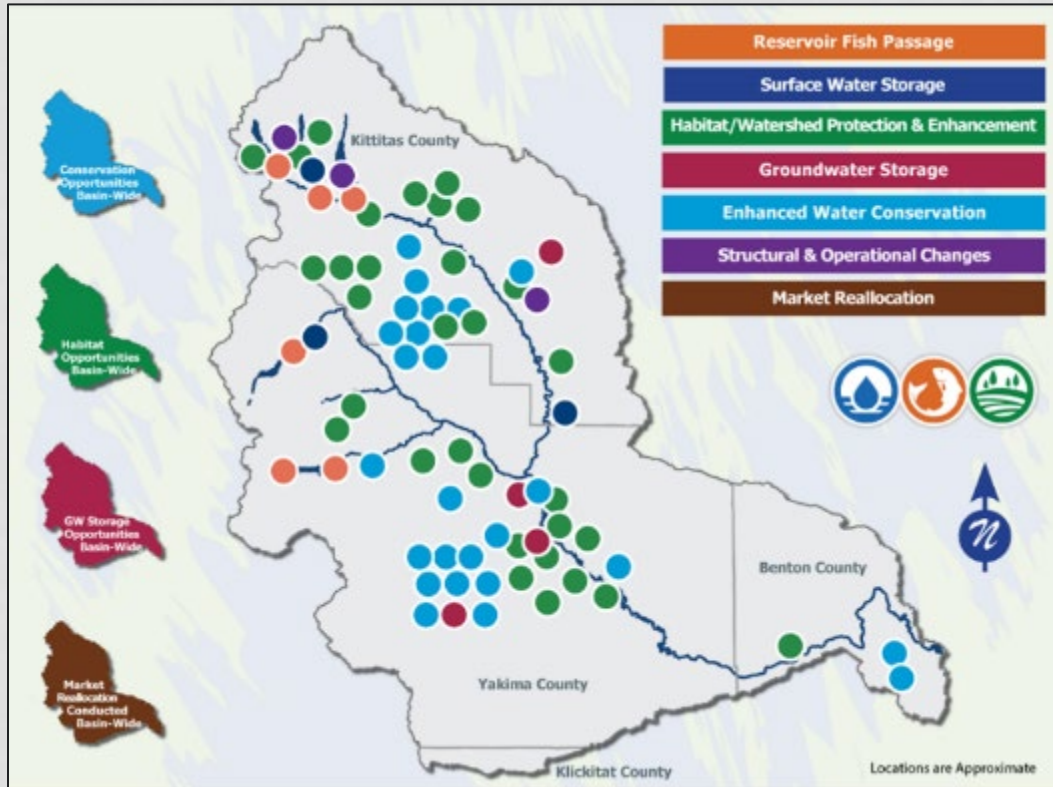
# YAKIMA BASIN INTEGRATED PLAN



YRBWEP WORKGROUP – TECHNICAL PROJECTS UPDATE  
JUNE 1, 2022



# YAKIMA BASIN INTEGRATED PLAN



- Cle Elum Pool Raise
- Nelson Dam Removal
- SDBOC Fish Boom and Sluice Gate
- Bull Trout Update
- Cle Elum Fish Passage
- Sockeye Studies





# CEPR: WISH POOSH CAMPGROUND & BOAT LAUNCH



- Wish Poosh Campground and Boat Launch, not to scale
- Award June 2020, USFS Facility
- Construction: September 2020 to May 2022





# WISH POOSH CONSTRUCTION



Anchored  
Logs



Campground Watering  
Station



Picnic Island  
Vault Toilet  
Removal



Well House  
Access Road



Cle Elum  
Reservoir

Picnic Island

Wish Poosh  
Campground



# WISH POOSH CONSTRUCTION



Boat Launch Road  
Raise and  
Replacement



Boat Launch  
Road to Picnic  
Island



Drainage  
Swale  
Along Boat  
Launch  
Road



Rip-Rap  
Embankment



Cle Elum  
Reservoir

Boat Launch  
Rd



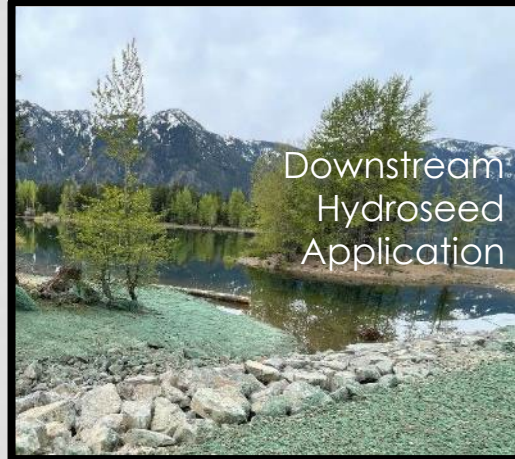
# WISH POOSH CONSTRUCTION



Hydroseed  
Application



Upstream  
Hydroseed  
Application



Downstream  
Hydroseed  
Application



Cle Elum  
Reservoir

Boat Launch  
Rd



# WISH POOSH CONSTRUCTION



Davis Creek  
Culvert  
Downstream



Davis Creek  
Culvert  
Upstream



Davis Creek  
Culvert  
Downstream



Davis Creek  
Culvert  
Upstream



Cle Elum  
Reservoir

Davis Creek



# WISH POOSH CONSTRUCTION



Masonry Wall – Boat Launch Parking Lot



Vault Toilet/Accessible Parking



Masonry Wall – Boat Launch Parking Lot



Anchored Logs



Cle Elum Reservoir

Boat Launch



# NELSON DAM REMOVAL NATURE-LIKE CHANNEL



- City and County of Yakima
- Improves passage to 309 miles of habitat
- Decreases flood risk
- Improves water supply reliability
- USACE – Lead NEPA Agency w/ BPA and Reclamation
- Phase 1 Cost - \$18 M – July 2021



# SUNNYSIDE DAM FISH PASSAGE IMPROVEMENT PROJECT



- Adaptive management identified lower river smolt survival problem.
- Concept to construction in one year.

Sunnyside Diversion Dam Before Installation



# SUNNYSIDE DAM FISH PASSAGE IMPROVEMENT PROJECT



Fish Boom Installation  
– Spring 2021





# SUNNYSIDE DAM FISH PASSAGE IMPROVEMENT PROJECT



Fish Boom Installation – Spring 2021





# SUNNYSIDE DAM FISH PASSAGE IMPROVEMENT PROJECT



## Sluice Gate Installation Fall 2021



# SUNNYSIDE DAM FISH PASSAGE IMPROVEMENT PROJECT



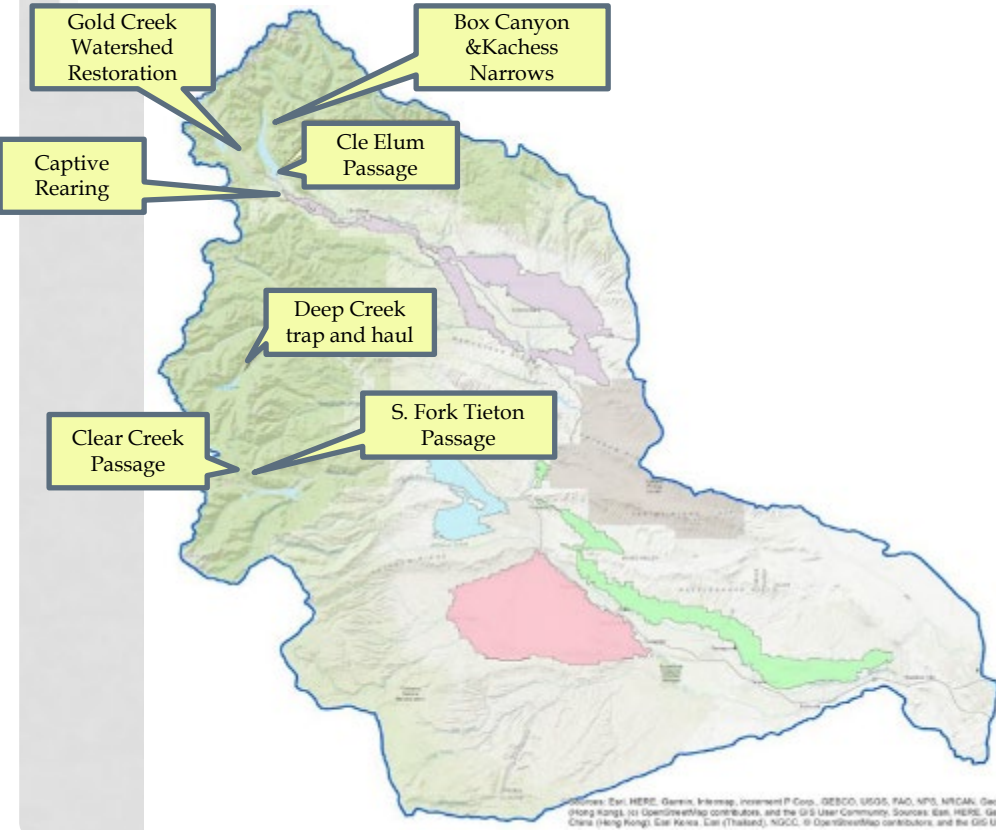
- Fall 2021
- Monitoring is on-going



Sluice Gate Installation



# BULL TROUT RECOVERY PROJECTS



MOU - Reclamation, Ecology, Yakama Nation, USFWS, WDFW, USFS - signed 2015

- Goal - healthy, harvestable stocks of bull trout throughout the Yakima Basin.
- Effective fish passage at Reclamation reservoirs and tributaries.
- Habitat enhancement in rivers and floodplains.
- Rescue, rearing and conservation hatchery programs.
- Robust surveys, science and planning.



# CAPTIVE REARING & RELEASE



## Gold Creek

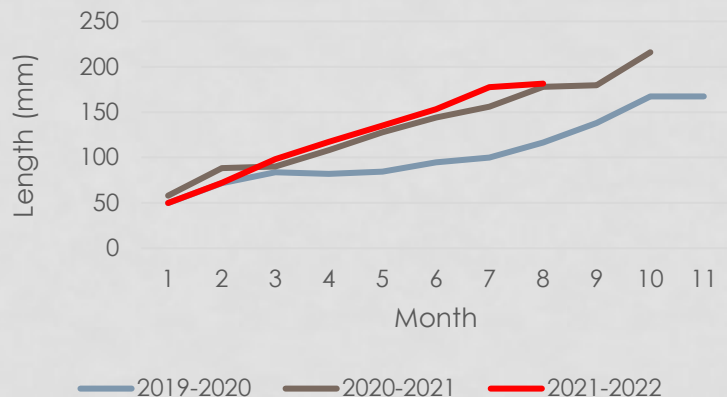
<u>Year</u>	<u>Released</u>	<u>Survival</u>
2020	78	73%
2021	63	98%
2022	87*	

## Kachess River

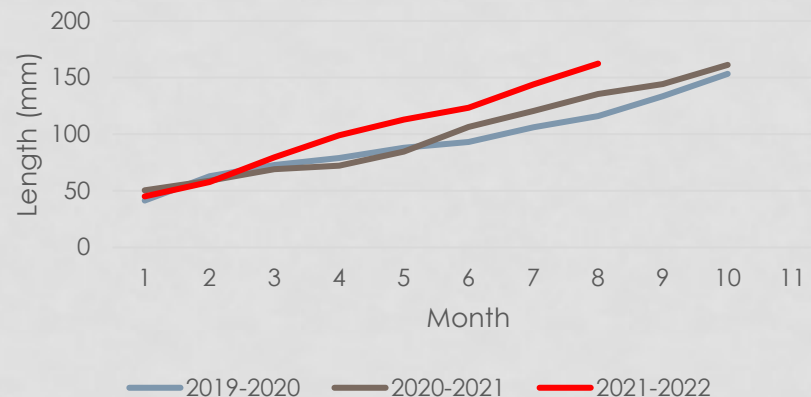
<u>Year</u>	<u>Released</u>	<u>Survival</u>
2020	152	14%
2021	531	89%
2022	600*	

2022 Proposed release dates are June 28 and June 29

Gold Creek Growth



Kachess River Growth



# MONITORING & EVALUATION



## 2021 PIT Tag Detections

### Gold Creek LWR Site

LaSalle BT	38
Gold Creek Rescued BT	3
Cutthroat	0
Trap and Haul	3

### Kachess River Site

LaSalle BT	8
Kachess R. Rescued BT	4
Cutthroat	2

### Box Canyon Creek

LaSalle BT	16
Kachess R. Rescued BT	0
Box Canyon Tagged BT	6
Cutthroat	0



# EASTON RESEARCH AND REARING FACILITY



- 12 Fiberglass 20' X 4' X 5' Raceways
- 4 Fiberglass 10' circular early rearing tanks
- 2 Fiberglass 30' circular late-stage rearing tanks
- Chiller and egg room for up to 100K eggs



## Phase I:

Capture and Rear up to 3,500 Bull Trout for approximately, 3 months then release. Begin "life boating" Ahtanum Creek.

Reintroduction Areas :

- \* North Fork Teanaway River
- \* Taneum Creek



## Phase II:

Include Big Creek and Waptus Lake Watershed (Cle Elum) for reintroduction



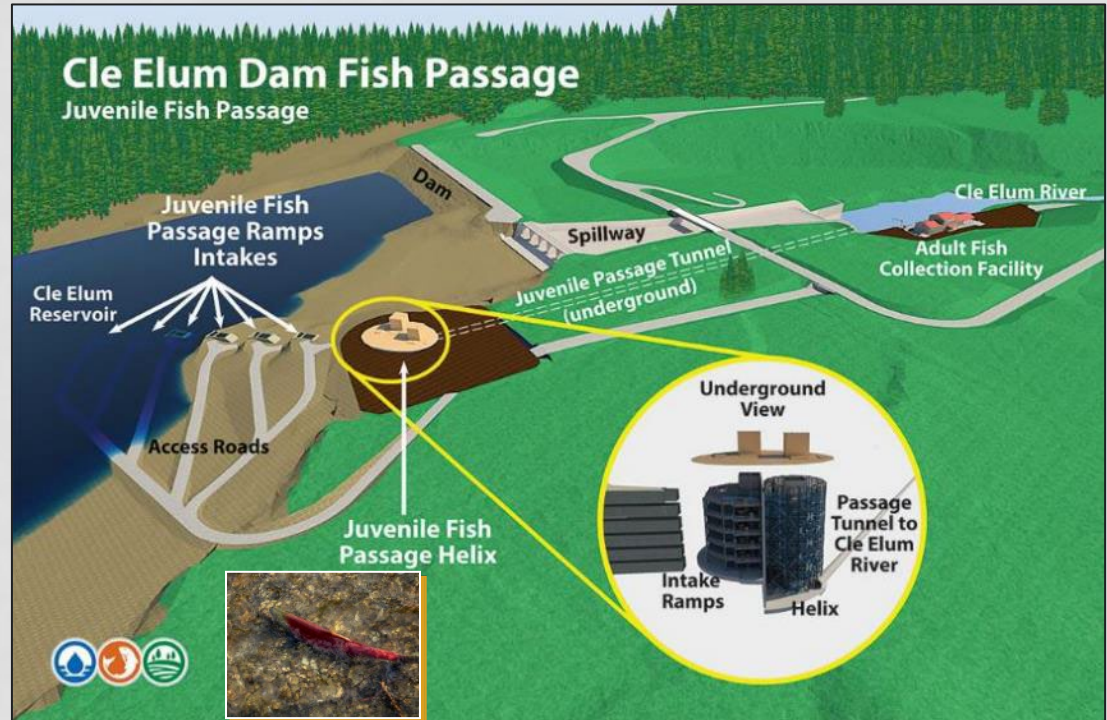
## Possible Additional alternatives:

Begin Adult Brood holding  
Live spawn adults and use offspring for supplementation and reintroduction

# CLE ELUM DAM FISH PASSAGE

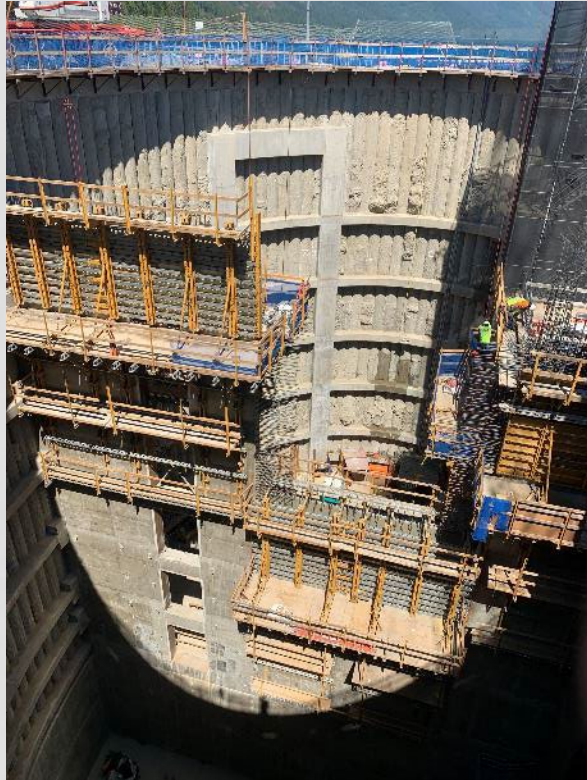


- Adult and juvenile passage in process
- \$200M innovative project
- Cost Share BOR/WA
- 4 of 5 contracts completed or in progress
- Fully funded Intake, Gate and Helix Contract FY22 (Awarded in FY18)
- Adult Collection Facility to be awarded in FY22/FY23
- Anticipate operational - 2026



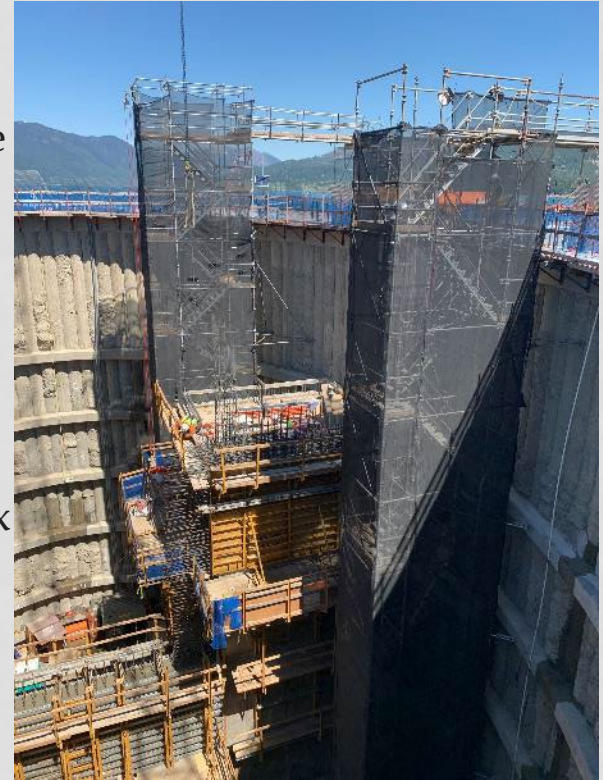


# CLE ELUM DAM FISH PASSAGE



## Separation Wall Construction.

- Divides the secant structure into the “gate” chamber and the “helix” chamber.
- Isolates each chamber in case of leakage on one side or the other.
- Approximately 240 steps from the bottom of the helix chamber to the top of the secant structure.



# CLE ELUM DAM FISH PASSAGE



- Intake structure foundations.



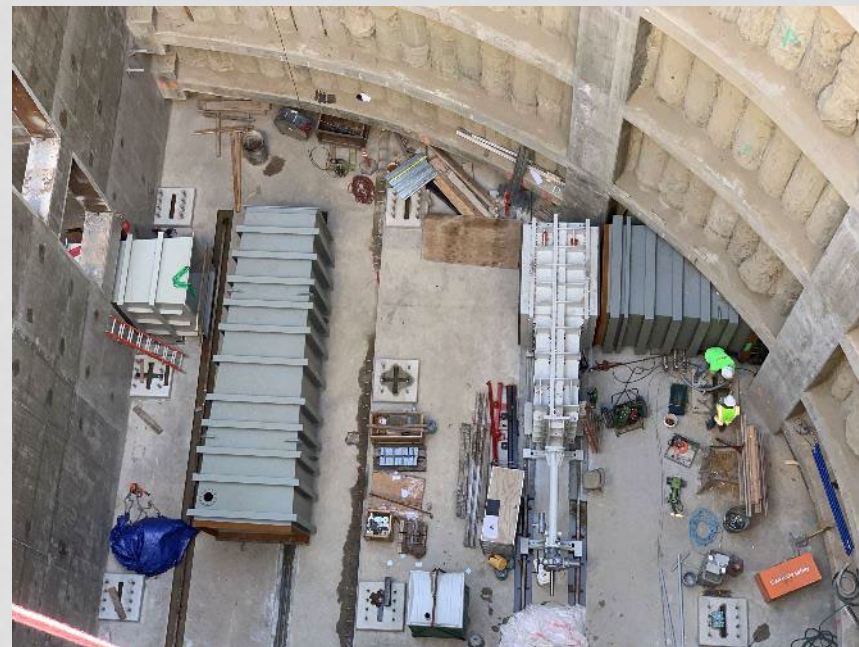
- Intake 6 complete, intake 5 formwork started.



# CLE ELUM DAM FISH PASSAGE



- Tunneling through grout block section.



- Intake 6 guard gate and conduits.

# CLE ELUM DAM FISH PASSAGE



- Precast sections connect the steel conduits to the cast-in-place intake structures.
- Electrical and pneumatic piping routed beneath the precast sections for operation of the Obermeyer gates.





# CLE ELUM DAM FISH PASSAGE



- November 2021, first of 12 concrete lifts for the helix chamber access structure and the first of five floors in the gate chamber begin.



# CLE ELUM DAM FISH PASSAGE



- Helix Chamber Access Structure
- Overall height of the access structure ~140'.
- Approximately 9 months to complete based upon a 3-week cycle.





# CLE ELUM DAM FISH PASSAGE



- Helix Chamber Access Structure
- Lift #11 of 12



- Gate chamber

# CLE ELUM DAM FISH PASSAGE



- Helix structure mock-up in Spokane, WA, April 2021.
- Construction to begin in Summer 2022.



## Off-site “Construction” Activities

- Inspection & demonstration of the contractor designed leaf gate handling rails system.
- Inspection of the precast concrete flume sections prior to shipment to the construction site.

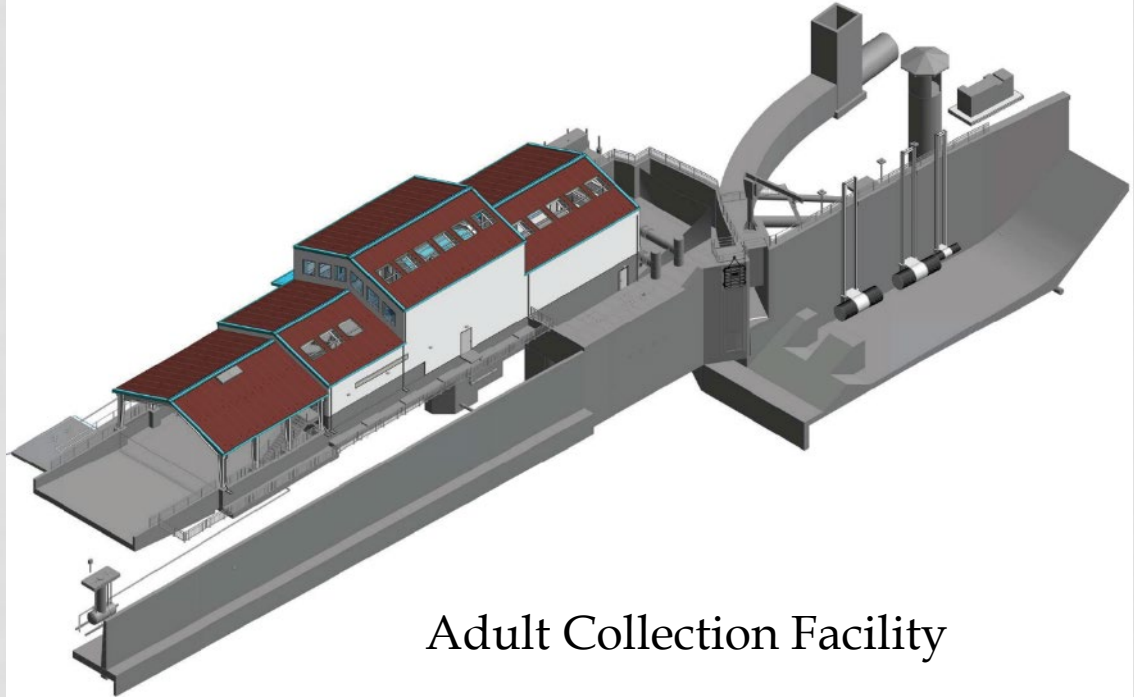


# CLE ELUM DAM FISH PASSAGE



## Look Ahead

- Resume work on the intake structures as reservoir levels drop, intakes 1-4 remaining.
- Begin construction of helix structure inside secant.
- Award Adult Collection Facility construction contract.



Adult Collection Facility

# SOCKEYE STUDIES

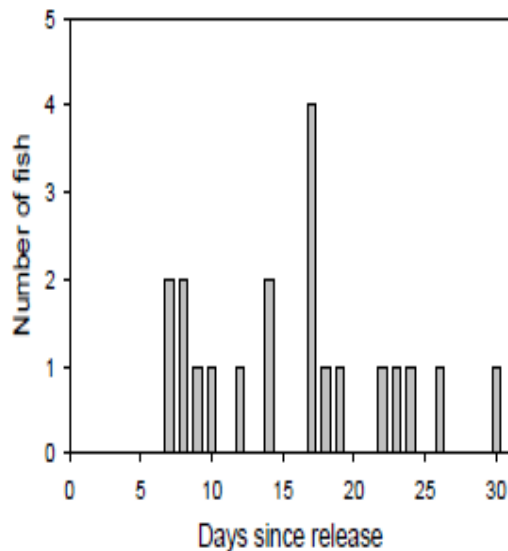


- Adult Sockeye Tracking
  - Roza to Cle Elum
  - Yakima River Mouth to Roza
- Juvenile Sockeye Tracking
- Temperature & Dissolved Oxygen Model
- Yakama Nation's Salmon Reintroduction



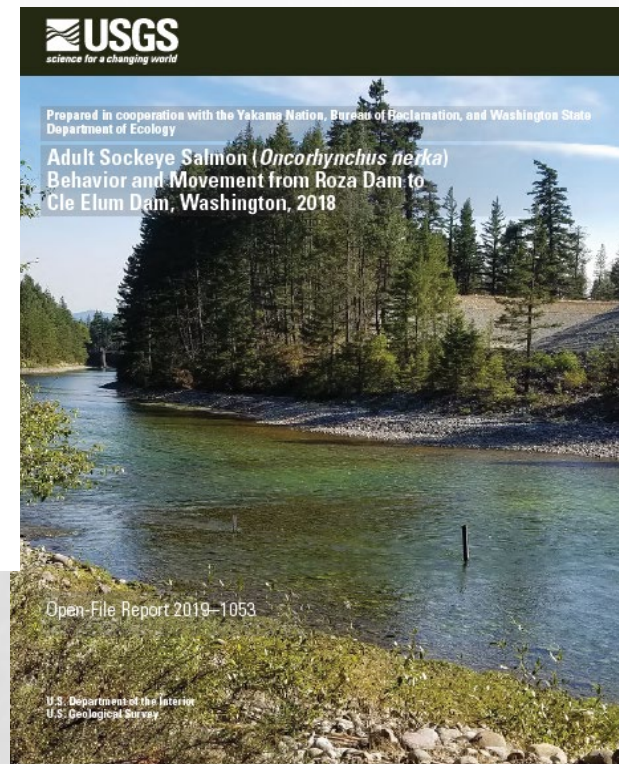


# SOCKEYE BEHAVIOR & MOVEMENT



## ROZA DAM TO CLE ELUM DAM

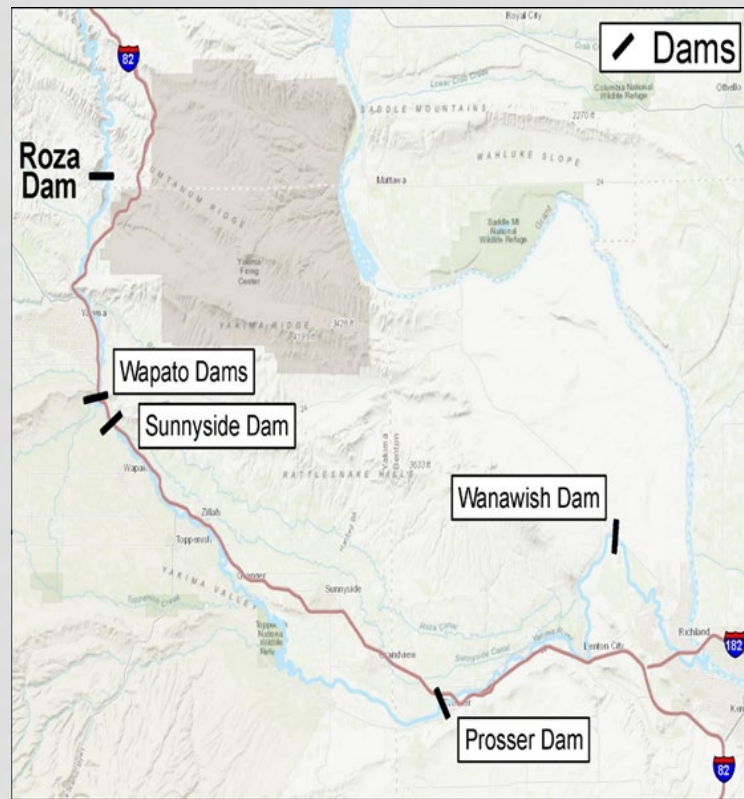
<https://pubs.er.usgs.gov/publication/ofr20181116>



# SOCKEYE BEHAVIOR & MOVEMENT

## MOUTH OF THE YAKIMA TO ROZA DAM

- Reach Length is about 125 Miles
- Tagging Locations
  - Columbia River
  - Prosser Dam Trap
- Passage Issues at Dams (delays)
- False Attraction (irrigation spills)
- Cool Water Refuge Use
- Columbia River Stranding





# STUDY OBSERVATIONS

## MORTALITY



### Observations in 2019 and 2020

- Poaching
- Legal Harvest
- Bird Predation
- Stranding/Dying
  - Columbia River
  - Lower Yakima River
- Tagging stress



# STUDY OBSERVATIONS

## MIGRATION BEHAVIOR



Observations in 2019 and 2020

- Fall Back - McNary
- Upstream Migration - Columbia
- Upstream Migration - Yakima
- Milling Around - Columbia
- 2021 Study Halted Due to Hot River Temperatures
- 2022 Study Will Start Mid-June

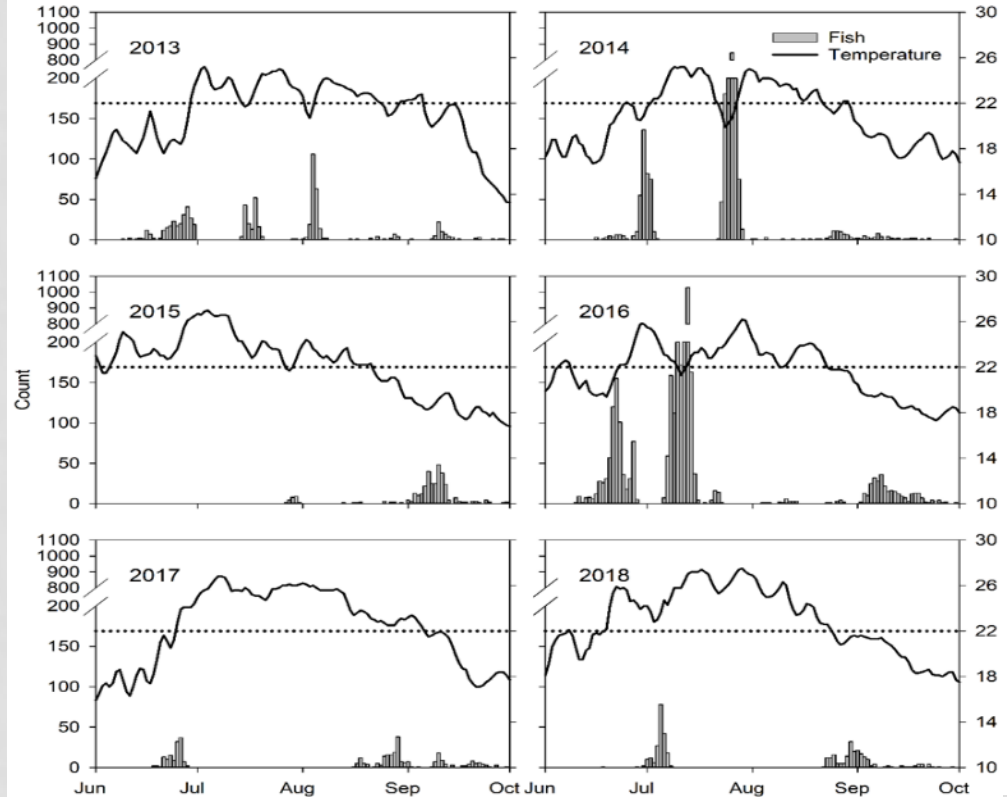




# TEMPERATURE & D.O. MODEL



- Maintain Early Season River Temperature
- Maintain Weather Related River Cooling



# TESTING LAMPARA SEINE NETTING SYSTEM



Cle Elum Reservoir – May 2022



# JUVENILE SOCKEYE TAGGING



# YAKAMA NATION'S REINTRODUCTION PROJECT







# KÁLUX

## Sockeye

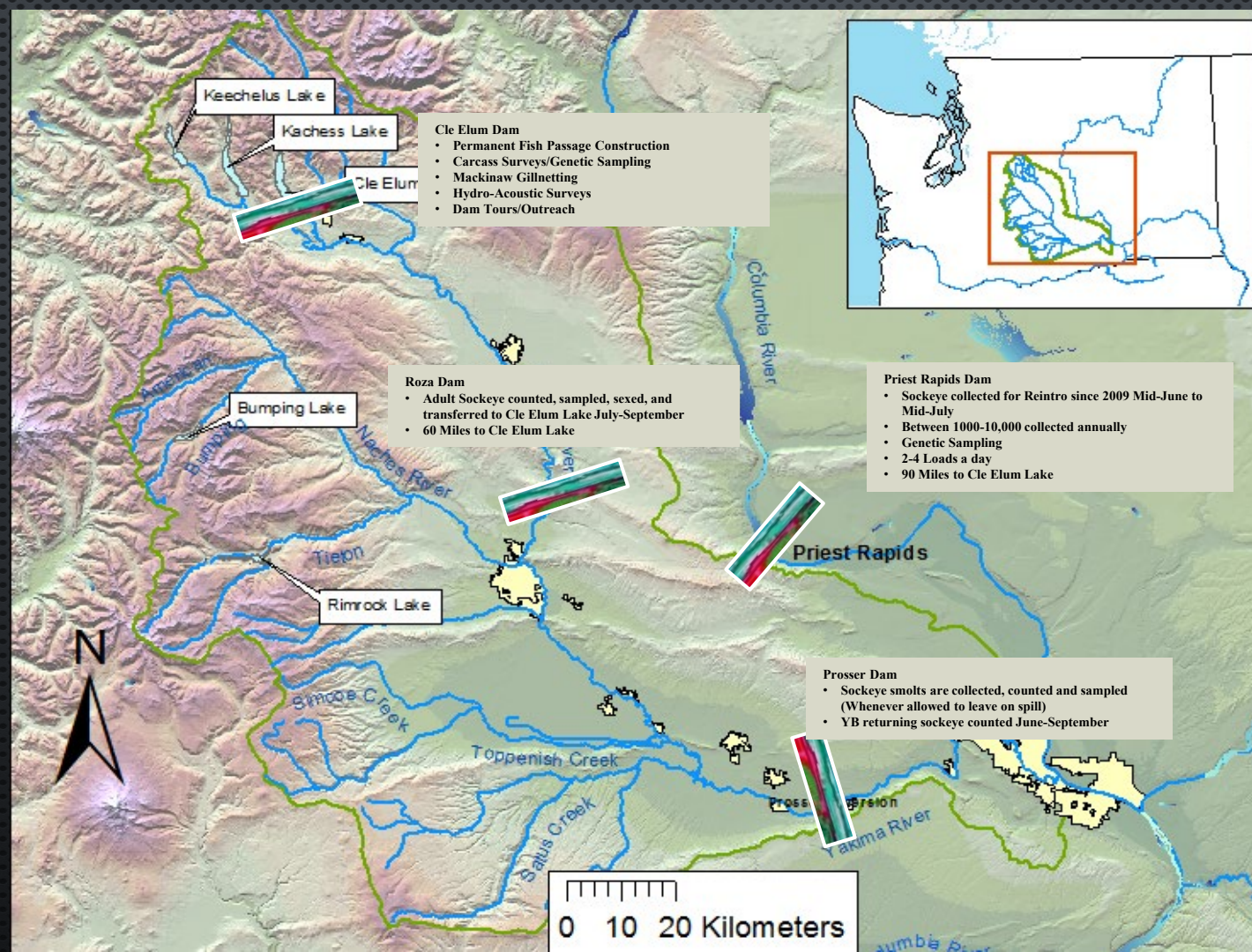




# Cle Elum Sockeye Reintroduction

Year	Broodyear Count	Bonneville Dam Count	Trap & Haul to Cle Elum Lake	Natural Production Returnees
2009	177,823	1,000	1,000	1,000
2010	386,325	2,500	2,500	2,500
2011	185,796	4,000	4,000	4,000
2012	515,673	10,000	10,000	10,000
2013	185,505	4,500	4,500	4,500
2014	614,179	10,000	10,000	10,000
2015	510,706	10,000	10,000	10,000
2016	342,498	10,000	10,000	10,000
2017	87,693	1,000	1,000	1,000
2018	193,816	4,600	4,600	4,600
2019	63,046	0	0	0
2020	341,739	10,000	10,000	10,000
2021	151,765	2,700	2,700	2,700







# MORE TROUT FOR KITTITAS

State of Washington, to Get 5,000,000  
Mackinaw Trout Eggs from Wisconsin—County Game Commission will  
Ask for All They Can Get

Chairman M. C. Miller of the Kittitas Game Commission Wednesday received word from State Game Warden Darwin that 5,000,000 Mackinaw trout eggs would become available for planting in this state next year. The eggs will come from Wisconsin. Mr. Miller states that the county game commission will immediately apply for as many as they can get to plant in Lake Cle Elum, Keechelus and Kachess, all of which are deep water lakes well adapted to the Mackinaw. This season 50,000 of them were planted in Lake Keechelus. Mr. Darwin's letter, which contains some other matters of interest to sportsmen, follows:

A holder of a non-resident hunter's license may take the number of birds which it is lawful for him to kill in this state in one day out of the state with him, providing that he executes an affidavit before a notary public or other officer having a seal, stating that the game he so removed from the state was killed by him in a lawful manner and that the said game is not being exported for the purpose of sale. Such affidavit shall describe said birds and shall be attached to the license while in transit from the state.

The above is the substance of an opinion just rendered to me by the Hon. L. L. Thompson, Attorney General, and we will govern ourselves accordingly.

The Attorney General gives it as his opinion that Section 5373 Rem. & Bal. Code, which was enacted in 1905, and which expressly permits non-resident hunters to take their kill out of the state as provided above, is not repealed by the passage of the Game Code in 1913. This is because the destruction of the law heretofore given it by the Attorney General and the State Game Warden.

We are laying our plans this year to distribute a large number of Chinese pheasant eggs and a smaller number of Mallard duck eggs, without charge, from the State Game Farm at Walla Walla to those County Game Commissioners and citizens generally in the state who will agree to hatch the eggs and thence to the offspring when it is able to take care of itself.

Will you be good enough to advise me if it is the desire of your Game Commission to receive any of these eggs of either variety, and if so, the number that you would like to have?

If your County Game Commission is unable to handle this, I suggest that you take the matter up with the postmaster of your county and see if they will not ascertain if any of their residents care to receive eggs on the above conditions. Last year we had hundreds of applications for eggs from persons who desired to raise Chinese pheasants.

We also beg to advise you that we have arranged an exchange with the State of Wisconsin for five million silver trout eggs for five million Mackinaw trout eggs. Mackinaw trout require deep water. Kindly advise if your county desires any of these, and

The Cascade Miner - Cle Elum Echo  
CLE ELUM, KITTITAS COUNTY, WASHINGTON, FRIDAY, APRIL 6, 1923

## PLANT NEARLY 2,000,000 FRY

Kittitas County Game Commission  
Make Annual Report—Of Much  
Interest to Sportsmen Over the  
County.

According to a report of W. E. Crowley, chairman of the Kittitas county game commission, nearly 2,000,000 fish have been reared and distributed in the various streams, lakes and sloughs of the county within the past year. Of this number 1,250,000 were Eastern brook trout, 114,200 Steelhead trout, 97,000 Rainbow trout, 50,000 Montana Black Spotted trout and 200,000 Cutthroat trout, or a total of 1,717,700. The fish were all hatched at the county hatchery on Cash creek about a mile west of South Cle Elum, under the direction of Fred Yocum.

The planting of the fry have been in the following waters:

Eastern Brook—Short & Dunnington ranch, 40,000; Fittler's slough near Johnson's mill, 40,000; Thorp pond, 40,000; railway slough near Thorp, 40,000; Farwell's slough near Thrall, 35,000; Ringer slough near Thrall, 40,000; lake on Lookout mountain, 6,000; Cooper lake, 350,000; Swamp lake, 40,000; Diamond slough, near upper Ellensburg bridge, 40,000; Reed creek, Fred Hansen ranch, 40,000; Fish lake, 200,000; Pease slough south of Ellensburg, 35,000; Smith slough south of Ellensburg, 35,000; Lake Keechelus, 100,000; Indian George slough south of Ellensburg, 35,000; Fogarty slough, 35,000; Hansen creek, northeast of Ellensburg, 35,000; Wallace slough near Thorp, 35,000; Wilson creek, 35,000.

Other varieties—Lake Keechelus, Steelheads, 114,200; Rainbows, 97,000; Taneum creek, Montana Black Spotted, 50,000; Fish lake, Cutthroats, 100,000; Nannum creek, Cutthroats, 66,000; Menauchin creek, Cutthroats, 35,000.

In Cooper lake, Fish lake and Lake Keechelus, three of the most important lakes within the county, considerably over half a million fry were planted last year, the total all varieties, being 866,700. A total of 1,188,200 fry were planted in the lakes, sloughs and sloughs in the southern part of the county or easily accessible to residents in that section.

During the year 65 chickens, 60 ducks and a few Chinese pheasants were released. A total of 3,618 muskrats had been trapped and released, 7 non-resident licenses, and 22 state licenses were issued during 1922. Seventy-eight beaver were trapped under direction of the commission and the money turned in to the game fund. From 20 convictions for violation of game laws in the amount of \$312.50 were collected. Bounty was paid on 131 coyotes, bobcats, 1 wolf, 1 fox, and 1 wildcat. It is stated that approximately 200 magpies were killed during the year in the county by state hunters and poison.

FRIDAY, DECEMBER 24, 1920

## 150,000 EGGS FOR OUR COUNTY

Large Shipment of Mackinaw Trout  
Eggs Delivered at County Hatchery  
in South Cle Elum by Darwin

Supt. Rices of the county hatchery late last week received a shipment of 150,000 Mackinaw trout eggs from State Fish Commissioner Darwin, which he will hatch out next spring for early planting in this county. This is the largest shipment of Mackinaw yet received and the county game commission is very grateful for it, as well as sportsmen generally. Some after more Mackinaw eggs and in a letter to the editor stated that Commissioner Darwin secured very favorably.

Last spring 50,000 Mackinaws were planted in Lake Cle Elum. This species of trout will very likely all be placed in large lakes of the county as the Mackinaw grows to a large size and requires deep water. If the Mackinaw thrives here, the people of Kittitas county will have some of the finest fishing imaginable as well as a fish which is the most of any in the world for eating.


A movement is under way now to trade silver trout eggs which can be taken in Lake Keechelus in large quantities for brook trout eggs, which are more acceptable here.

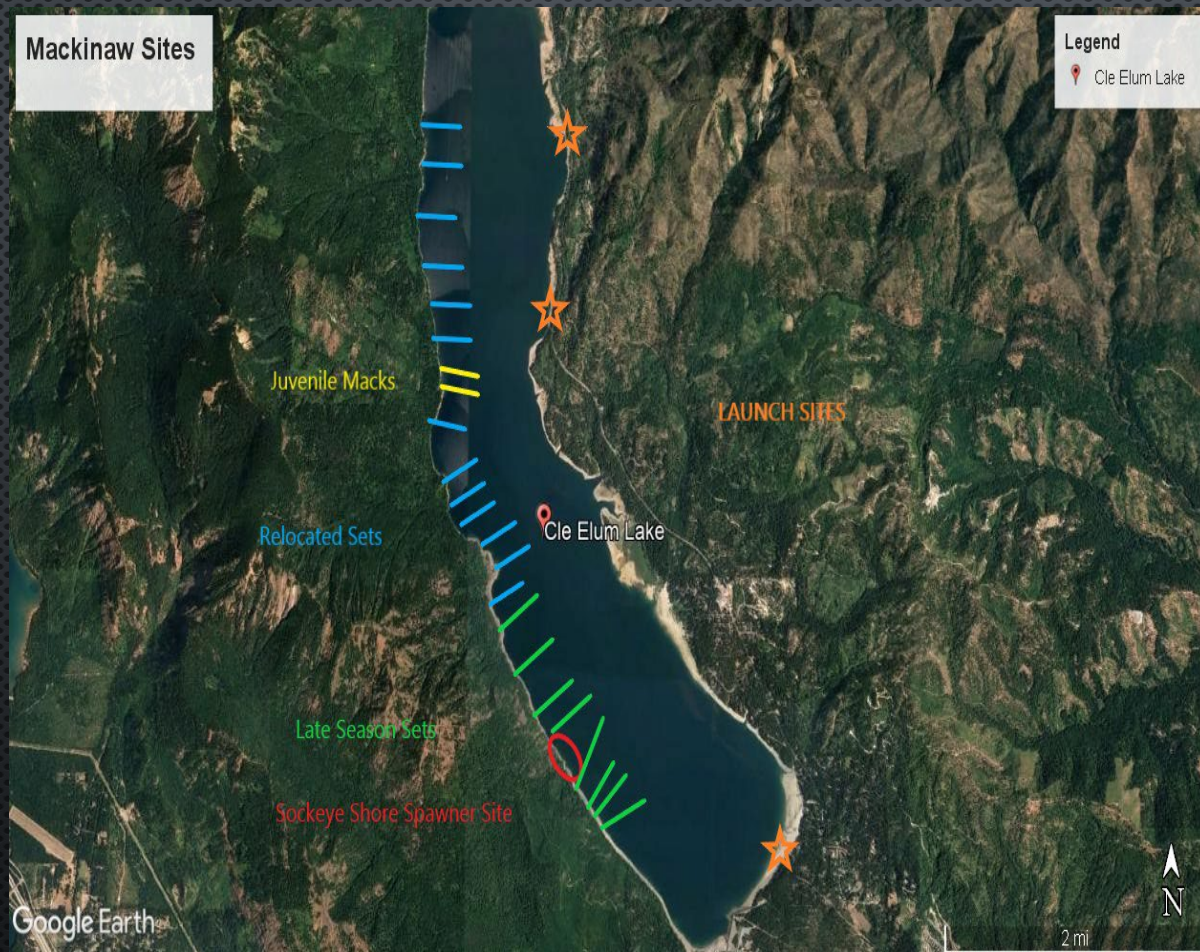
29 Oct. 1920



## Mackinaw Sites

### Legend

 Cle Elum Lake



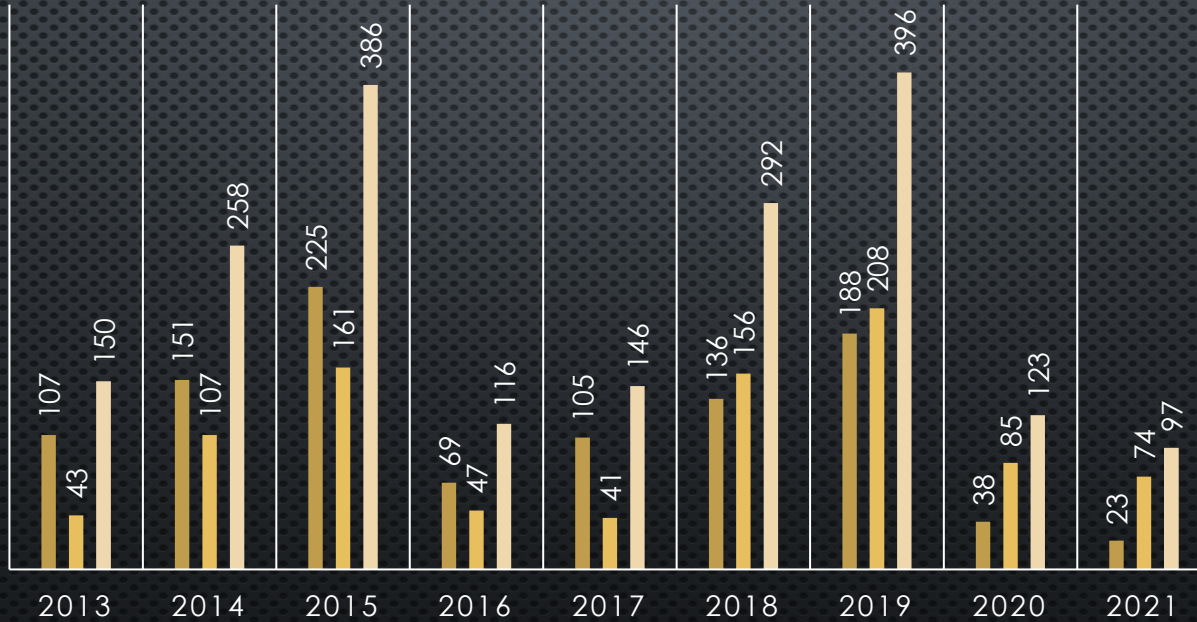






# ERADICATED MACKINAW

Female Male Total



2225 Elevation Needed					@ 2170
Month	DAY	YEAR	TRAP & HAUL	RETURNEES	W/FISH PASSAGE
0	0	2019	0	130	JAN 27, 2019
JUNE	05	2010	2,500	0	JAN 16, 2010
MAY	21	2017	1,000	100	JAN 01, 2017
MAY	13	2014	10,000	2,653	JAN 01, 2014
MAY	04	2018	4,600	456	JAN 19, 2018
MAY	01	2009	1,000	0	JAN 01, 2009
APRIL	23	2012	10,000	0	JAN 01, 2012
APRIL	20	2013	4,500	703	JAN 01, 2013
APRIL	08	2016	10,000	4,600	JAN 16, 2016
MARCH	31	2011	4,000	0	JAN 09, 2011
February	11	2015	10,000	300	JAN 01, 2015



# THANK YOU!



## Questions?

Website: [www.yakimabasinintegratedplan.org](http://www.yakimabasinintegratedplan.org)